

## REMARKS

The non-final Office Action dated August 4, 2010 listed the following new grounds of rejection: claims 1-12 stand rejected under 35 U.S.C. § 103 as anticipated by Gindele et al. (U.S. Patent No. 6,549,678) ("Gindele"); and claims 13-16 are rejected as obvious over Gindele in view of Prentice et al. (U.S. Patent Pub. 2002/0159631) ("Prentice") and claims 13-16 stand rejected under 35 U.S.C. § 103 as being obvious over Gindele in view of Prentice in further view of Hunter et al. (U.S. Patent No. 7,071,978) ("Hunter"). Applicant traverses all of the rejections and, unless explicitly stated by the Applicant, does not acquiesce to any objection, rejection or averment made in the Office Action.

Applicant respectfully traverses the §103(a) rejections of claims 1-12 because there is no acceptable rationale for combining Gindele with Prentice to describe all of the limitations of the claims in the present application. Specifically, claim 1 recites "A method for improving the perceived resolution of a color matrix display " and "subdividing an incident color channel signal to said pixel into a first and second signal component, applying a gain factor to one of said signal components, the gain factor being based upon the incident color channel signal's contribution to total luminance of the display". In page 3 of the current Office action, the Examiner suggests that paragraph 22 of Prentice provides a rationale for combining Gindele and Prentice to provide a "better display result". This section of Prentice, however, is only referring to the innovations of Prentice, and does not provide a rationale for combining Prentice and Gindele.

Gindele shows a method for improving the perceived resolution of a color computer display 30 as shown in Figure 1. A pedestal splitter 30a takes on the red channel, for example, and splits it into components  $R_{txt}$  and  $R_{ped}$  (see Figure 2, column 3, lines 45 to 67). After that, a slope calculator 37 applies a scalar constant, which supposedly corresponds to the claimed gain factor, based on the color's texture displacement in the overall image, which is also a function of their overall brightness contribution since the color placement of the color channel is factored into the

calculated midtone gain (see Figure 2, column 5, lines 5 to 55). Finally, the texture signal and the pedestal signal are recombined in an adder and exit the system as transformed color image which could be displayed on a computer screen (see Figure 1, 2, columns 3, lines 23 to 44)

Prentice teaches a color-specific gain factor control based on the luminance channel which is the contribution to the overall luminance of the display when extracted from the image data as a whole. In this way the filtering system of Prentice would be able to factor in the contribution for each of the color channel in terms of luminance when applying color-specific filtering (see Figures 2, 3, paragraphs 16 to 18).

The teachings of Gindele and Prentice relate to technically different fields, and there is no motivation for a person skilled in the art to combine the teachings of Gindele and Prentice in the way suggested by the examiner. This is additionally true since Gindele and Prentice do not relate to improving the perceived resolution of a color matrix display.

In particular, the teaching of Gindele relates generally to the field of image processing, and more particularly to a method for adjusting the tone scale of a digital image. The teaching of Gindele is silent about improving distortions due to aliasing in the images. On the other hand, the teaching of Prentice relates to the field of digital image processing but with emphasis on luminance processing based on color dependence. In paragraph 5 Prentice teaches a method for developing a photographic image from a digitized color image by filtering the image and developing the image. Filtering of the image entails separating the image into a luminance channel and chrominance channels, respectively. Luminance channels are altered by modifying the red, green and blue coefficients used to generate the luminance channel based upon a filter color to produce the altered luminance channel and recombining the chrominance channels and the altered luminance channel. In other words, Prentice teaches to apply color filters in analogy to previously used filters in black and white photography. But instead of applying filters to the image in a global way he suggests using chrominance and luminance channels separately.

As described in the present application, the independent claims may relate to aliasing which occurs when sub-pixels are shifted (see page 4, lines 20 to 22). Three such sub-pixels (e.g. R, G, B) are generally grouped together into a single full color pixel. Sub-pixels can give extra resolution when the grouping into full color pixels is released. By using shifting of sub-pixels with respect to each other and maintain proper phase shift, however, aliasing may occur (see page 1, line 23 through page 2, line 2). The present principle provides improved sub-pixel shift and in one potential embodiment, may successfully solve at least the above-mentioned source of issue. Clearly, neither Gindele nor Prentice relate to anti-aliasing and sub-pixel shifting, and Gindele and Prentice do not provide any motivation to combine, since there is no teaching or suggestion in Gindele and Prentice that the benefits of the current claims might be achieved by a combination of Gindele and Prentice.

Therefore, Applicants respectfully submit that claim 1 is not obvious in view of Gindele and Prentice for at least the reasons discussed above. Additionally, claims 7 and 12 include recitations similar to those of claim 1 above, and claims 2-6 and 8-11 depend from claims 1, 7, and 12. Therefore, Applicants respectfully request that the rejection of claims 1-12 under 35 U.S.C. be withdrawn.

Applicant respectfully traverses the §103(a) rejections of claims 13-16 because there is no acceptable rationale for combining Gindele with Prentice and Hunter to describe all of the limitations of the claims in the present application.

Hunter teaches applying a gain factor includes applying a gain factor that sets constants of a visible aliasing term for incident color channel signal to zero to remove a visible aliasing term from a signal. However, for the same reasons discussed above, Hunter does not provide an acceptable rationale for combining Gindele with Prentice and hunter to describe all of the limitations of the claims in the present application. Applicants therefore respectfully submit that claims 1 and 12, as well as claims 13-16 dependent thereon, are not obvious given the cited art, and Applicants respectfully request that the rejection under 35 U.S.C. of claims 13-16 be withdrawn.

**CONCLUSION**

In view of the above, Applicant believes that each of the rejections has been overcome and the application is in condition for allowance. Should there be any remaining issues that could be readily addressed over the telephone, the Examiner is encouraged to call Applicants' attorney at the number below if doing so will in any way advance prosecution of this application.

The Commissioner is hereby authorized to charge any fees which may be required, or credit in the overpayment, to Deposit Account No. **07-1896** referencing Attorney Docket No. **348162-982480**.

Respectfully submitted,

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